20070527.ba v04_n056.bam.20070527

>From ???@??? Sat May 26 21:59:37 2007 -0500
Date: Sun, 27 May 2007 02:53:09 GMT
From: Old Tube Radios <boatanchors@theporch.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: BOATANCHORS digest 4056
Message-Id: <20070527025314.EE9974700E7@srvr1.theporch.com>

BOATANCHORS Digest 4056

Topics covered in this issue include:

1) Re: line voltage too high ?
   by Rhett George <rtg@ee.duke.edu>
2) DurHamFest
   by Rhett George <rtg@ee.duke.edu>
3) Re: Fw: Kon Tiki; Call: LI2B
   by Richard Post <postr@ohiou.edu>
4) SWR Bridges, Cantennas, Heat-exchangers....
   by Zengmeiste@aol.com
5) Repost: SWR Bridges, Cantennas, Heat-exchangers....
   by Zengmeiste@aol.com
6) Re: line voltage too high ?
   by "Donald Sanders" <w4bws@comcast.net>
7) Re: line voltage too high ?
   by "Brian A Clarke" <brianclarke01@optusnet.com.au>
8) Re: line voltage too high ?
   by "Brian A Clarke" <brianclarke01@optusnet.com.au>
9) RE: line voltage too high ?
   by "Brian Goldsmith" <brian.goldsmith@echo1.com.au>
10) National NC-200 Silver Anniversary Receiver
   by "Liles Garcia" <landn2@verizon.net>
11) Re: line voltage too high ?
   by "Tom Rauch" <w8ji@contesting.com>
12) Re: Repost: SWR Bridges, Cantennas, Heat-exchangers....
   by wb3fau@att.net
13) Re: National NC-200 Silver Anniversary Receiver
   by Richard Post <postr@ohiou.edu>
14) Re: National NC-200 Silver Anniversary Receiver
   by wb3fau@att.net
15) Re: line voltage too high ?
   by "Arden Allen" <gumbear@pacbell.net>
16) Re: line voltage too high ?
   by "Tom Rauch" <w8ji@contesting.com>
17) Re: Repost: SWR Bridges, Cantennas, Heat-exchangers....
   by Tom Norris <r390a@bellsouth.net>
18) Re: line voltage too high ?

by "Arden Allen" <gumbear@pacbell.net>
19) Re: line voltage too high ?
by "Tom Rauch" <w8ji@contesting.com>

Date: Fri, 25 May 2007 13:02:06 -0400
From: Rhett George <rtg@ee.duke.edu>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: line voltage too high ?
Message-ID: <20070525170206.GA10773@ee.duke.edu>
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Disposition: inline

- Greetings -

Many points well-taken regarding the line voltage variation and whether it is a vexing problem, or not. Regarding motors, starting currents for motors, single or three-phase, are much higher than running currents for most loads. Fans are a possible exception. Line voltages higher than nominal will drop to a value not quite as low when starting a motor compared to a nominal line voltage. Beyond getting the motor and load started, consider that the load requires a certain power. If the motor is running on a higher voltage, then the current is slightly reduced so that the delivered power remains the same. True, the magnetization current is increased, but the overall current typically decreases. Less current means the motor runs cooler; ditto for the utility's distribution transformer.

A 6 V heater/filament transformer connected to buck the line voltage is one way to lower the work that our boatanchor transformers must do and lower the power the electronics must absorb.

Cheers.

Rhett George

Date: Fri, 25 May 2007 13:08:51 -0400
From: Rhett George <rtg@ee.duke.edu>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: DurHamFest
Message-ID: <20070525170851.GB10773@ee.duke.edu>
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Disposition: inline

- Greetings -

A note to those attending the DurHamFest tomorrow.

The opening time is 8:30 a.m.

The location is on route 501 at the Little River Community Center, not at the National Guard Armory. This is perhaps 8 miles north of the armory (site for the past several years). It is on the left or west side of 501. The town of Rougemont is about 2 miles farther north. Turn around if you get to Rougement.

73 Rhett - KE4HIH

Mime-Version: 1.0
Message-Id: <p05210601c27ce836b8bf@[192.168.2.2]>
Date: Fri, 25 May 2007 15:32:07 -0400
To: Old Tube Radios <boatanchors@theporch.com>
From: Richard Post <postr@ohiou.edu>
Subject: Re: Fw: Kon Tiki; Call: LI2B
Cc: Old Tube Radios <boatanchors@theporch.com>
Content-Type: text/plain; charset="us-ascii" ; format="flowed"

If the question is still what was the power source, the answer is dry batteries. They actually took apart some of the B batteries to power the filaments on the NC-173 toward the end of the ride. You can run the NC-173 on relatively little B power but the filament requirement is rather heavy.

More at

http://oak.cats.ohiou.edu/~postr/bapix/NC173.htm

73,
Rich KB8TAD

At 10:49 AM -0600 5/25/07, JAMES HANLON wrote:
>The links below will be of interest to any Kon Tiki fans. This came
>from the Ten Tec Reflector.
>
>
>On May 24, 2007, at 8:25 PM, Bill Harris wrote:
>
>> Bob:

```
>>  I remember the National ads in QST (around 1947).  Full page with a
>>  picture of the raft and the NC-173   Does anyone remember what Thor
>>  used to power the equipment?? They were adrift for quite some time
>>  (3 months?) and lead acid batteries would need charging after a few
>>  day's from operating the 173, not to mention the transmitter. Their
>  > back up xmtr was qrp, (British Mark II) powered by a hand crank

------------------------------
From: Zengmeiste@aol.com
Message-ID: <d33.d662b0d.3388bc3c@aol.com>
Date: Fri, 25 May 2007 18:25:00 EDT
Subject: SWR Bridges, Cantennas, Heat-exchangers....
To: Old Tube Radios <boatanchors@theporch.com>
MIME-Version: 1.0
Content-Type: multipart/mixed; boundary="part1_d33.d662b0d.3388bc3c_boundary"


--part1_d33.d662b0d.3388bc3c_boundary
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*         ---REMAINDER OF MESSAGE TRUNCATED---            *
*     This post contains a forbidden message format       *
*  (such as an attached file, a v-card, HTML formatting)  *
*    Mail Lists at theporch.com only accept PLAIN TEXT    *
* If your postings display this message your mail program *
* is not set to send PLAIN TEXT ONLY and needs adjusting  *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

--part1_d33.d662b0d.3388bc3c_boundary--

------------------------------
From: Zengmeiste@aol.com
Message-ID: <cd7.10b44934.3388c810@aol.com>
Date: Fri, 25 May 2007 19:15:28 EDT
Subject: Repost: SWR Bridges, Cantennas, Heat-exchangers....
To: Old Tube Radios <boatanchors@theporch.com>
MIME-Version: 1.0
Content-Type: multipart/alternative;
boundary="part1_cd7.10b44934.3388c810_boundary"


--part1_cd7.10b44934.3388c810_boundary
Content-Type: text/plain; charset="US-ASCII"
Content-Transfer-Encoding: 7bit

  Thanks, Tom, for letting me know my post didn't post.
```

Owch; sorry, all. Caught by the anti-html gremlins.
Obviously I speak a dialect they do not like! The filter does
-not- like equal-signs followed by a greater-than sign...
one (standard?) abbreviation for 'yields', 'produces', 'ya get'
or 'and the result is'. Here's the original text.

quote

What fun. Why not add cooling fins to the resistors,
or (better) heat-sink all the resistors to a large metallic
surface and put an electro-cooling unit on the other side.
You know, dc in -this- way, ya get heating, dc in -that- way,
ya get cooling.

Is that feasible?

Thanks & 73,
Terry KC9KEL

unquote<BR><BR><BR>**************************************<BR> See what's free at
http://www.aol.com.</HTML>

--part1_cd7.10b44934.3388c810_boundary
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

```
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*         ---REMAINDER OF MESSAGE TRUNCATED---             *
*     This post contains a forbidden message format        *
*  (such as an attached file, a v-card, HTML formatting)  *
*    Mail Lists at theporch.com only accept PLAIN TEXT     *
* If your postings display this message your mail program *
* is not set to send PLAIN TEXT ONLY and needs adjusting  *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
```

--part1_cd7.10b44934.3388c810_boundary--

Message-ID: <005501c79f2e$b5dfbf00$7700a8c0@hsd1.al.comcast.net>
From: "Donald Sanders" <w4bws@comcast.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: line voltage too high ?
Date: Fri, 25 May 2007 19:42:12 -0500
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

I was fortunate to find 2 transformers with dual 6.3 volt 10 amp windings. I have them wired so I can switch either one or both windings in series with the primary of my antique radios and I have a meter on the output to monitor the line voltage into the antique. My old sears series 1928 is still operating on the original 01A's, i believe that's the tube, although I have 4 spares. This radio was purchased by my mother for her parents in 1928 and still operated today, although the music is a lot different.

Healthfully yours,
Don W4BWS

----- Original Message -----
From: "Rhett George" <rtg@ee.duke.edu>
To: "Old Tube Radios" <boatanchors@theporch.com>
Sent: Friday, May 25, 2007 12:02 PM
Subject: Re: line voltage too high ?

>
> - Greetings -
>
> Many points well-taken regarding the line voltage variation and whether it is a vexing problem, or not. Regarding motors, starting currents for motors, single or three-phase, are much higher than running currents for most loads. Fans are a possible exception. Line voltages higher than nominal will drop to a value not quite as low when starting a motor compared to a nominal line voltage. Beyond getting the motor and load started, consider that the load requires a certain power. If the motor is running on a higher voltage, then the current is slightly reduced so that the delivered power remains the same. True, the magnetization current is increased, but the overall current typically decreases. Less current means the motor runs cooler; ditto for the utility's distribution transformer.
>
> A 6 V heater/filament transformer connected to buck the line voltage is one way to lower the work that our boatanchor transformers must do and lower the power the electronics must absorb.
>
> Cheers.
>
> Rhett George
>
>

Message-ID: <046001c79f37$41ccb1a0$0202a8c0@Belkin>
From: "Brian A Clarke" <brianclarke01@optusnet.com.au>
To: Old Tube Radios <boatanchors@theporch.com>

Subject: Re: line voltage too high ?
Date: Sat, 26 May 2007 10:59:25 +1000
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

Almost everywhere I have lived in the last 40 years, the distribution authorities have fitted automatic, on-line tap-changers to the distribution transformers. To avoid responding to the line noise of appliances being turned on and off, there is usually a time delay, or in some of the more recent ones, a time-based integrator that determines when to change a tap.

If your pole-pigs don't have automatic tap-changers, there's your first major problem. As the tap-changers are the whim and property of the distributors, leaving the delivered voltage high makes economic sense to the distributor who has a get-out clause that allows no claim for burnt appliances. In my travels in the US, I don't recall having seen a pole pig fitted with an automatic tap-changer - perhaps they are fitted further up the feed chain, eg, at the 100 kV+ distribution level.

When electricity gets distributed in a fully meshed and competitive market, ie, a few generators and many distributors, whose main role is to charge for electricity metered at your consumer outlet, then you start to see more control of voltage at the consumer level.

Till then, in this brave new economic rationalist world of caveat emptor, it's up to you, the end consumer, to fit your own voltage regulator. More income for Sola and the like. Ain't economics wonderful?

73 de Brian, VK2GCE.

Message-ID: <055801c79f56$3bdd2120$0202a8c0@Belkin>
From: "Brian A Clarke" <brianclarke01@optusnet.com.au>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: line voltage too high ?
Date: Sat, 26 May 2007 15:25:09 +1000
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

Hi Rhett,

Not so fast.
Many motors' magnetics are designed to run just below saturation.
This is particularly the case where the accountants are more powerful
than the design engineers. In a shunt wound motor, increasing the
line voltage increases the risk of running into saturation and much
higher line current - plus harmonics.

Arden raised the point about SMPSs being more mains voltage
variation tolerant. Ain't necessarily so. There are still many SMPSs
out there with the input filter cap rated at 350 WVdc. This limits
the safe mains voltage to 124/247 Vac. Some later SMPSs use a
400 WVdc input filter - that's good for 142/283 Vac = much safer.

73 de Brian, VK2GCE.

From: "Brian Goldsmith" <brian.goldsmith@echo1.com.au>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: RE: line voltage too high ?
Date: Sat, 26 May 2007 17:41:01 +1000
Message-ID: <000901c79f69$357a2bd0$0a00a8c0@pcbriang>
MIME-Version: 1.0
Content-Type: text/plain;
    charset="us-ascii"
Content-Transfer-Encoding: 7bit

-----Original Message-----
From: Brian A Clarke

Many motors' magnetics are designed to run just below saturation.
This is particularly the case where the accountants are more powerful
than the design engineers.

***Agreed,the same goes for a lot of boat anchor type transformers I have
seen.

In a shunt wound motor, increasing the
line voltage increases the risk of running into saturation and much
higher line current - plus harmonics.

***** I think you have used the wrong terminology here,normally a shunt
wound motor requires DC.With DC there can be no harmonics!

Brian Goldsmith.

Date: Sat, 26 May 2007 01:37:26 -0700
From: "Liles Garcia" <landn2@verizon.net>
Subject: National NC-200 Silver Anniversary Receiver
To: Old Tube Radios <boatanchors@theporch.com>
Message-id: <OBEDKFDGHEPDGADPPEHFIEBECFAA.landn2@verizon.net>
MIME-version: 1.0
Content-type: text/plain; charset=iso-8859-1
Content-transfer-encoding: 7bit

Good evening Everybody,

I recently got a National NC-200 along with a speaker. On the front panel of the receiver is one of those National cloisonne (sp?) emblems that has the "NC" in red and also has "Silver" written across the top and "Anniversary" across the bottom. The emblem has a horizontally-oriented rhombic shape. I have a speaker that matches the NC-200 and has the identical emblem on the top front of the speaker cabinet. I am positive that the speaker and receiver were acquired at different times.

Are these Silver Anniversary NC-200's rare or common? The receiver has an output transformer bolted to the back of the chassis. The grill cloth in the speaker cabinet is not original and is torn; but grill cloth is not too difficult to get. The speaker in the cabinet is a original-looking Jensen PM speaker. The speaker has a 5 pin plug on the end of its cable. Because of the bolted-on output transformer, the 5 pin socket is missing from the receiver. I would like to put the NC-200 together as original as possible, so I will be looking for the correct 5 pin socket.

As you all know, National began in 1914; so the 25th (silver) anniversary would be in 1939. Moore's book says that NC-200's were made from 1940 to 1943. Were all NC-200's Silver Anniversary editions? Any information from you National experts would be much appreciated--many thanks in advance!!

I would like to wish everybody a happy and safe Memorial Day Weekend!!

Best regards from Aloha, Oregon,
Liles Garcia
landn2@verizon.net

Message-ID: <008101c79f88$0447c710$640fa8c0@radioroom>
From: "Tom Rauch" <w8ji@contesting.com>

To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: line voltage too high ?
Date: Sat, 26 May 2007 07:21:23 -0400
MIME-Version: 1.0
Content-Type: text/plain;
     format=flowed;
     charset="iso-8859-1";
     reply-type=original
Content-Transfer-Encoding: 7bit

> Not so fast.
> Many motors' magnetics are designed to run just below
> saturation.

Not so fast Brian.

Well designed electric motors reach maximum flux density with a locked rotor, and the flux density decreases as the motor reaches full speed. They are designed to have maximum gap flux density at the point where maximum starting torque is obtained.

Pity the poor motor that is designed so poorly as to run at maximum flux density. It would have a tough time starting under load (like a three phase motor running with 80-90 degree phase shift into a winding using a three phase "converter"). Motors generate a counter MMF that limits or reduces current and flux density at running speeds.

There's also some odd notion that circulates that heat is a sign of saturation in magnetic devices. For example many people wrongly think a hot ferrite core must be "saturated" when the real culprit is loss tangent or I^2 heating in copper.

> This is particularly the case where the accountants are
> more powerful
> than the design engineers. In a shunt wound motor,
> increasing the
> line voltage increases the risk of running into saturation
> and much
> higher line current - plus harmonics.
>

I think we are getting a bit too pessimistic about cost accounting. In VK and ZL the distribution system is much different than the USA. There are still many earth return systems (single wire feeds) and some very long LV distribution systems. Not only that, VK and ZL stuff as many people as possible on a single huge distribution transformer, something virtually never done in the USA. Houses in my area for example use a single 10-25kVa pig to feed one or two houses at the most.

Our typical electric service entrance is now 200 amperes 240 VAC, with the majority of the load distributed between either side of a half-point "neutral" to provide 120V.

The profits in out country are largely set by state PUC's so it does no good at all to crank up voltages to crank up profits. I'm afraid the idea they crank up voltage to maximize profit is a theory based on phobia. The largest problem facing any utility is having the system meet peak load demands without browning out. This is really the sole technical reason for the bit higher voltage unless low load conditions...although someone setting the tap too high on initial installation could be a factor also.

In the USA the distribution system is much tighter. There are fewer people on each pig, the drop lines are much shorter, we virtually always use a return wire rather than relying on lossy earth as a second conductor, and we have more plants distributed around the country. As such we don't have the wild fluctuations that require automatic tap adjustment at the consumer level. It isn't part of a conspiracy to make money, it is simply a logical fit to our system.

The voltage was bumped up over the past 50 years as demand by consumers increased. The primary reason was to increase system efficiency. It's pretty tough to get above 200 amps with a low percentage voltage drop when the system has low voltage. We get a double reward in stability when the voltage is bumped up. Not only does the load require less current (less I*R voltage drop) the percentage of change for a given load voltage drop is less. Say it drops 5 volts at 110. That's about 5.5%, right at the limit. Now look at 125 volts. 5 volts would be 4%. Since all of our appliances and bulbs are now redesigned to run at 120V with normal tolerances then current is reduced for the same power and the whole system becomes more stable. Where a 100 watt 110V lamp used to draw .91 amperes it now is designed to draw 120V at .83 amperes.

When people are on the ball they set the system here so under lowest demand the voltage runs up above 250V, right at the upper limit of the standard for our 120/240V mains. Then when peak demands are met the system won't brown out by going far below the 5% low range.

This isn't some giant conspiracy to bilk the consumer.

73 Tom

.

From: wb3fau@att.net
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Repost: SWR Bridges, Cantennas, Heat-exchangers....
Date: Sat, 26 May 2007 16:00:54 +0000
Message-Id:
<052620071600.21242.465859B5000D7EE5000052FA21587667559A0E00CC0D99@att.net>

What   do you call that? A peltier junction?

Mime-Version: 1.0
Message-Id: <p05210600c27e075a2716@[192.168.2.2]>
Date: Sat, 26 May 2007 12:06:03 -0400
To: Old Tube Radios <boatanchors@theporch.com>
From: Richard Post <postr@ohiou.edu>
Subject: Re: National NC-200 Silver Anniversary Receiver
Cc: Old Tube Radios <boatanchors@theporch.com>
Content-Type: text/plain; charset="us-ascii" ; format="flowed"

Hi Liles,

Osterman lists the NC-200 as "very scarce". I agree with his assessment. The cool-looking NC-200 with its "Silver Anniversary" emblem is one of the few radios I keep in the bedroom. The correct speaker has the output transformer (for push-pull 6V6) in the speaker cabinet. I do not have an original speaker. Instead, I use the speaker that matches the NC-46 (with output transformer added in cabinet). I looks good with the NC-200.

Mine was owned by a Naval officer according to a very neat little sticker inside. Left the tag in place for the history.

Got a pic of yours? Pic of mine dates is small. Was an early entry on my web page.

http://oak.cats.ohiou.edu/~postr/bapix/NC200.html

73,

Rich KB8TAD

At 1:37 AM -0700 5/26/07, Liles Garcia wrote:
>Good evening Everybody,
>
>I recently got a National NC-200 along with a speaker. On the front panel
>of the receiver is one of those National cloisonne (sp?) emblems that has
>the "NC" in red and also has "Silver" written across the top and
>"Anniversary" across the bottom.
>
>Are these Silver Anniversary NC-200's rare or common? The receiver has an
output transformer bolted to the back of the chassis.   Were all
NC-200's Silver Anniversary editions?

From: wb3fau@att.net
To: Old Tube Radios <boatanchors@theporch.com>
Cc: Richard Post <postr@ohiou.edu>, Old Tube Radios <boatanchors@theporch.com>
Subject: Re: National NC-200 Silver Anniversary Receiver
Date: Sat, 26 May 2007 16:34:21 +0000
Message-Id:
<052620071634.21233.4658618D000A540B000052F121587667559A0E00CC0D99@att.net>

Hey Rich, that looks almost as nice as my NC-240D...Russ.

Message-ID: <004301c79fdf$e020d540$e4a0480c@KB6NAX>
From: "Arden Allen" <gumbear@pacbell.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: line voltage too high ?
Date: Sat, 26 May 2007 14:39:20 -0700
MIME-Version: 1.0
Content-Type: text/plain;
     charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

> Many motors' magnetics are designed to run just below saturation.
> This is particularly the case where the accountants are more powerful
> than the design engineers.

We are speaking of induction motors me thinks (universal motors with brushes
that run on both AC and DC are a different story). The saturation point

depends on the loading. Just like with transformers the more energy consumed by the load the less is stored in the flux field. IR losses being the big loser. For example, take the fan blade off of a fan motor and you may find the motor running with no load gets quite a bit hotter (not because of the absence of air flow). That's the quasi saturation effect. Depends on motor design also.

Arden Allen
KB6NAX

Message-ID: <006701c79ff3$807c2f40$640fa8c0@radioroom>
From: "Tom Rauch" <w8ji@contesting.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: line voltage too high ?
Date: Sat, 26 May 2007 20:10:51 -0400
MIME-Version: 1.0
Content-Type: text/plain;
     format=flowed;
     charset="iso-8859-1";
     reply-type=original
Content-Transfer-Encoding: 7bit

> We are speaking of induction motors me thinks (universal
> motors with brushes
> that run on both AC and DC are a different story). The
> saturation point
> depends on the loading. Just like with transformers the
> more energy
> consumed by the load the less is stored in the flux field.

Actually a transformer is a bit different. As the load is increased the primary current increases until the flux density is nearly the same. The slight decrease is from voltage drop in the primary and a slight increase in flux leakage, but in an ideal transformer the flux would not change. In a real transformer the flux loss would be small unless the transformer had significant loss.

I used to spec high power transformers to run as close as safe to their saturation limit to reduce losses and increase regulation. The flux density would stay nearly the same at no load or full load.

A conventional motor is different. The spinning armature generates a counter MMF that reduces flux. The faster the motor turns the greater the counter MMF and the lower the gap flux density. The lower the flux density the lower the current. The reduction in flux density is what causes the motor to reduce torque just to the level that overcomes friction and load, and this is what prevents non-synchronis motors from overspeeding.

Now some motors behave a bit differently, but off-hand I can't think of any that are built to be saturated except at starting under load. My son had a model car that saturated the poles, but that was because he raced it and was dumping 15-18 volts into 5 volt motor.

One problem is we often equate saturation with poor regulation or with heat. Peak regulation occurs at or beyond saturation, and heat is just really a function of losses. Saturation simply means any additional flux has to appear outside the core area that is saturated. That's why air gaps in choke cores help.

73 Tom

Mime-Version: 1.0 (Apple Message framework v752.2)
Content-Type: text/plain; charset=US-ASCII; delsp=yes; format=flowed
Message-Id: <48E264C6-9F60-47BD-8C38-64FFB34504C1@bellsouth.net>
Cc: boatanchors@theporch.com
Content-Transfer-Encoding: 7bit
From: Tom Norris <r390a@bellsouth.net>
Subject: Re: Repost: SWR Bridges, Cantennas, Heat-exchangers....
Date: Sat, 26 May 2007 20:13:57 -0500
To: Old Tube Radios <boatanchors@theporch.com>

That's them :-)

As I remember, the more of them you have and the more current you pump into them (to a point) the more thermal differential there'll . For something as hot as a cantenna, the heatsink for the "cold" will have to be large, as they'll be transferring the heat away from the inside to an equal amount of heat outside. Not a real solution - unless they would transfer the heat faster, and in conjunction with, the oil.

On May 26, 2007, at 11:00 AM, wb3fau@att.net wrote:

> What   do you call that? A peltier junction?
>

Tom Norris
R390A@BellSouth.net

"Just because your children were born in the South does not make them Southerners. After all, if a cat had kittens in the oven, that wouldn't make them biscuits."

Message-ID: <001401c7a006$95236040$569e480c@KB6NAX>
From: "Arden Allen" <gumbear@pacbell.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: line voltage too high ?
Date: Sat, 26 May 2007 19:27:23 -0700
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

> Actually a transformer is a bit different. As the load is
> increased the primary current increases until the flux
> density is nearly the same. The slight decrease is from
> voltage drop in the primary and a slight increase in flux
> leakage, but in an ideal transformer the flux would not
> change. In a real transformer the flux loss would be small
> unless the transformer had significant loss. ....

Tom, it sounds like we are confusing oranges with citrus fruit. Saturation occurs when too much voltage is applied to the transformer or motor in either case. As in 18 volts to a 5 volt motor or 132 volts to a cheap iron shy transformer. The question is, as the load increases does the armature-field in the motor and likewise the core in the transformer come out of saturation as increasing power is transferred to the increasing load?

Arden Allen
KB6NAX

Message-ID: <009401c7a00a$3e6cbfe0$640fa8c0@radioroom>
From: "Tom Rauch" <w8ji@contesting.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: line voltage too high ?
Date: Sat, 26 May 2007 22:53:37 -0400
MIME-Version: 1.0

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Content-Type: text/plain;
     format=flowed;
     charset="iso-8859-1";
     reply-type=original
Content-Transfer-Encoding: 7bit
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> Tom, it sounds like we are confusing oranges with citrus
> fruit. Saturation
> occurs when too much voltage is applied to the transformer
> or motor in
> either case. As in 18 volts to a 5 volt motor or 132
> volts to a cheap iron
> shy transformer. The question is, as the load increases
> does the
> armature-field in the motor and likewise the core in the
> transformer come
> out of saturation as increasing power is transferred to
> the increasing load?

As I recall your statement was a transformer acts like a motor, and the flux density decreases in the transformer with increasing load.
That is incorrect.

As the load increases in a transformer the flux remains essentially the same. The only decrease in flux would come from flaws in the transformer, like flux leakage or copper resistance.

That's why a conventional transformer draws maximum current with maximum load. The better the transformer the more stable the flux.

On the other hand a conventional electric motor shows an increase in gap flux with increased load. This is because the winding generates a counter EMF that opposes current flow. The better the motor the greater the gap flux change from no load to maximum load.

That's why the common electric motor draws maximum current with a locked rotor, and minimum current with no load.

73 Tom

End of BOATANCHORS Digest 4056
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